

REMARKS

In view of the above amendments and following remarks, reconsideration and further examination are requested.

By the current Amendment claims 1-5 have been canceled and claims 6-11 have been added.

Initially, in response to the objection to the drawings as expressed in section 1 of the Office Action, replacement formal drawings have been provided for Figures 7, 8 and 10-13. These replacement drawings differ from originally filed Figures 7, 8 and 10-13 by not indicating hatched portions corresponding to restrictive orifices "116", "142", "164", "182" and "204". Additionally, these replacement formal drawings differ from the originally filed figures by not having hatched portions corresponding to the ports defined by the apertures and notches.

Please note that with regard to the originally filed figures, reference numerals 116, 142, 164, 182 and 204 were not to indicate pieces of a disc such that the second and third discs are of different diameters, but rather were merely intended to diagrammatically show the size of restrictive orifices defined between the discs.

In any event, a new replacement figure, Fig. 7A, is provided herewith, which is an enlarged front view, in part, of a valve assembly as viewed from the bottom of Fig. 7. As such, restrictive orifice 116 is shown in this figure. No new matter has been added by new Fig. 7A, nor by replacement Figs. 7, 8 and 10-13. Also, with regard to the areas S1-S6 of the ports, please note that all reference to "S1-S6" has been deleted from the specification.

In view of the above, it is respectfully submitted that the objection to the drawings should not be maintained.

In addition to deleting from the specification all reference to "S1-S6", the specification and abstract have been further reviewed and revised to make editorial changes thereto and generally improve the form thereof. All changes have been presented in the form of a substitute specification and abstract. No new matter has been added by the substitute specification and abstract.

The instant invention pertains to a piston assembly for a hydraulic shock absorber that includes a cylindrical housing adapted to be filled with a damping fluid. The piston assembly is slidably disposed within the cylindrical housing to divide an interior of the cylindrical housing into an upper working chamber and a lower working chamber, with a passage extending between the upper

and lower working chambers that allows the damping fluid to flow therethrough during movement of the piston assembly. The piston assembly includes a valve seat located at a downstream end of the passage, a first valve disc spaced from the valve seat, an apertured second valve disc retained on the first valve disc and including an aperture to be opened and closed by the first valve disc, a third valve disc retained on the second valve disc and having a plurality of notches arranged in a circumferentially spaced relationship, with the notches cooperating with the aperture to form a plurality of ports, and a fourth valve disc cooperating with the second valve disc to sandwich the third valve disc such that restrictive orifices are defined at outer ends of the notches. Such a piston assembly is generally known in the art as shown in Figures 14-18, but suffers from drawbacks due to the configuration of the second valve disc. These drawbacks are discussed on page 2, lines 11-27 of the original specification.

Applicant has addressed and resolved these drawbacks by developing a unique piston assembly. Specifically, instead of the apertured disc as used in the known piston assembly, the apertured second valve disc of the instant invention includes circular apertures, identified as reference numeral 102 in Figure 4 for example. Because of these circularly shaped apertures, a solid portion 104 of the second valve disc 86 located between adjacent ones of these apertures sufficiently supports a bottom of the first valve disc 84, and thus prevents undue flexing of the first valve disc even when a back pressure is exerted on the first valve disc. Additionally, the circular shape of the apertures evenly disperses or distributes such a back pressure along and around circumferences of the circular apertures.

An additional feature of the invention is that the circular apertures of the second valve disc and the notches 108 of the third valve disc 88 (Fig. 5) are so arranged that the total cross sectional area of any port defined by cooperation of the apertures and the notches is always greater than the cross sectional area of a restrictive orifice 116 (fig. 7A) regardless of a relative annular position between the second and third valve discs.

Independent claims 6 and 9 are believed to be representative of Applicant's inventive piston assembly. Please note that claim 6 basically corresponds to former claim 2 rewritten in independent form, and claim 9 basically corresponds to former claim 5 while including an additional limitation that the apertures in the second valve disc are circular in shape.

Claims 1-5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Miura in view of Yamaoka '113. This rejection is respectfully traversed in part, and these references are not applicable with regard to the newly added claims for the following reasons.

As alluded to previously, each of independent claims 6 and 9 requires that the apertures of the second valve disc are **circular**. This feature is lacking from Miura as noted by the Examiner, and thus, the Examiner relied upon Yamaoka '113 for concluding that it would have been obvious to have the second valve disc 41 of Miura include circular apertures. Specifically, the Examiner directed Applicant's attention to Figure 9 of Yamaoka '113 for a teaching of circular openings 102b in a valve disc 102.

However, these orifices 102b do not cooperate with notches 106c in disc 106 to form ports. Rather, it is arc-shaped openings 104c of disc 104 that cooperate with these notches to form ports. Thus, insofar as Yamaoka '113 is concerned, disc 104 corresponds to the claimed second disc and disc 106 corresponds to the claimed third disc. Similarly, in Miura disc 41 corresponds to the claimed second disc while disc 25 corresponds to the claimed third disc. Thus, were the disc 41 of Miura to have been modified in view of Yamaoka '113, the teachings of Yamaoka '113 as they pertain to disc 104 would have been employed. One having ordinary skill in the art would have gleaned nothing from the configuration of disc 102 of Yamaoka '113 with regard to how disc 41 of Miura could have been modified.

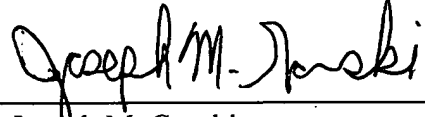
Accordingly, because each of Yamaoka '113 and Miura disclose annular or arc-shaped apertures, and not circular apertures, in the disc corresponding to the claimed second disc, modifying Miura in view of Yamaoka '113 would not have resulted in disc 41 of Miura having circular apertures as claimed. Thus, a combination of Miura and Yamaoka '113 would not have resulted in the invention as recited in claims 6 and 9, whereby claims 6-11 are allowable.

In view of the above amendments and remarks, it is respectfully submitted that the present application is in condition for allowance and an early Notice of Allowance is earnestly solicited.

If after reviewing this Amendment, the Examiner believes that any issues remain which must be resolved before the application can be passed to issue, the Examiner is invited to contact the Applicant's undersigned representative by telephone to resolve such issues.

Respectfully submitted,

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AMENDMENTS TO THE DRAWINGS:

Replacement Formal Drawings for Figures 7, 8 and 10-13, and a new Formal Drawing 7A, have been filed concurrently.